

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

December 3, 1982

Triple-I Energy Corporation
8100 Marty, Suite 117
Overland Park, Kansas 66204

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Dunn Lease, Well No. 4, located in Miami County, Kansas and submitted to our laboratory on November 24, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/rmc

5 c to Overland Park, Kansas

Oilfield Research Laboratories
GENERAL INFORMATION & SUMMARY

Company Triple-I Energy Corporation Lease Dunn Well No. 4
 Location _____
 Section 7 Twp. 19S Rge. 22E County Miami State Kansas

Elevation, Feet	
Name of Sand.....	Squirrel
Top of Core	556.0
Bottom of Core	573.0
Top of Sand	556.0
Bottom of Sand	569.8
Total Feet of Permeable Sand	12.2
Total Feet of Floodable Sand	1.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	2.8	2.8
1 - 5	5.4	8.2
5 - 10	0.9	9.1
13 - 26	3.1	12.2

Average Permeability Millidarcys	6.4
Average Percent Porosity	18.1
Average Percent Oil Saturation	35.6
Average Percent Water Saturation.....	42.9
Average Oil Content, Bbls./A. Ft.....	504.
Total Oil Content, Bbls./Acre.....	6,957.
Average Percent Oil Recovery by Laboratory Flooding Tests.....	4.0
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	67.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	67.
Total Calculated Oil Recovery, Bbls./Acre.....	

See "Calculated Recovery"
Section

2-

The core was sampled and the samples sealed in plastic bags by a representative of the client.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
556.0 - 557.0	Grayish brown shaly sandstone.
557.0 - 557.9	Brown slightly shaly sandstone.
557.9 - 561.0	Brown sandstone.
561.0 - 564.0	Grayish brown shaly sandstone.
564.0 - 566.6	Grayish brown very shaly sandstone.
566.6 - 568.0	Grayish brown shaly sandstone.
568.0 - 569.8	Grayish brown very shaly sandstone.
569.8 - 573.0	Grayish brown sandy shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 67 barrels of oil per acre was obtained from 1.0 foot of sand. The weighted average percent oil saturation was reduced from 34.0 to 30.0, or represents an average recovery of 4.0 percent. The weighted average effective permeability of the samples is 0.60 millidarcys, while the average initial fluid production pressure is 45.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 14 samples tested, 1 produced water and oil. This indicates that

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approximately 7 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 395 barrels of oil per acre. This is an average recovery of 395 barrels per acre foot from 1.0 foot of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.04
Reservoir water saturation, percent, estimated	20.0
Average porosity, percent	21.7
Oil saturation after flooding, percent	30.0
Performance factor, percent, estimated	50.0
Net floodable sand, feet	1.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE I-B

Company Triple-I Energy Corporation Lease Dunn Well No. 4

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	556.7	17.6	27	48	75	369	2.6	1.0	369	2.60	
2	557.6	19.7	40	24	64	611	8.2	0.9	550	7.38	
3	558.5	21.7	31	29	60	522	25.	1.1	574	27.50	
4	559.4	21.6	34	30	64	570	13.	1.0	570	13.00	
5	560.4	21.6	59	15	74	989	13.	1.0	989	13.00	
6	561.4	18.4	41	40	81	585	2.4	1.0	585	2.40	
7	562.5	19.2	21	50	71	313	3.3	1.0	313	3.30	
8	563.7	17.3	30	48	78	403	1.1	1.0	403	1.10	
9	564.4	15.9	41	47	88	506	0.34	1.0	506	0.34	
10	565.5	15.2	31	58	89	366	0.87	1.0	366	0.87	
11	566.5	15.9	35	55	90	432	Imp.	0.6	259	0.00	
12	567.6	17.2	42	44	86	560	4.7	1.4	784	6.58	
13	568.3	15.4	43	55	98	514	Imp.	1.0	514	0.00	
14	569.5	15.7	18	67	85	219	0.21	0.8	175	0.17	

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.	4	
Triple-I Energy Corporation	Dunn			
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	
556.0 - 561.0	5.0	12.7	63.48	
561.0 - 569.8	7.2	2.1	14.76	
556.0 - 569.8	12.2	6.4	78.24	
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
556.0 - 561.0	5.0	38.0	610	3,052
561.0 - 569.8	8.8	34.2	444	3,905
556.0 - 569.8	13.8	35.6	504	6,957

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Triple-I Energy Corporation Lease Dunn Well No. 4

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation		Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water			
1	556.7	17.6	27	369	0	0	27	49	0	Imp.	-
2	557.6	19.2	41	611	0	0	41	23	0	Imp.	-
3	558.5	21.6	31	519	0	0	31	30	0	Imp.	-
4	559.4	21.7	34	572	4	67	30	49	8	0.60	45
5	560.4	21.5	59	984	0	0	59	16	0	Imp.	-
6	561.4	17.9	42	583	0	0	42	39	0	Imp.	-
7	562.5	19.1	21	311	0	0	21	50	0	Imp.	-
8	563.7	17.4	30	405	0	0	30	49	0	Imp.	-
9	564.4	16.4	40	509	0	0	40	48	0	Imp.	-
10	565.5	15.3	31	368	0	0	31	59	0	Imp.	-
11	566.5	15.4	36	430	0	0	36	54	0	Imp.	-
12	567.6	17.2	42	560	0	0	42	44	0	Imp.	-
13	568.3	15.0	44	512	0	0	44	54	0	Imp.	-
14	569.5	15.6	18	218	0	0	18	68	0	Imp.	-

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Well No. 4

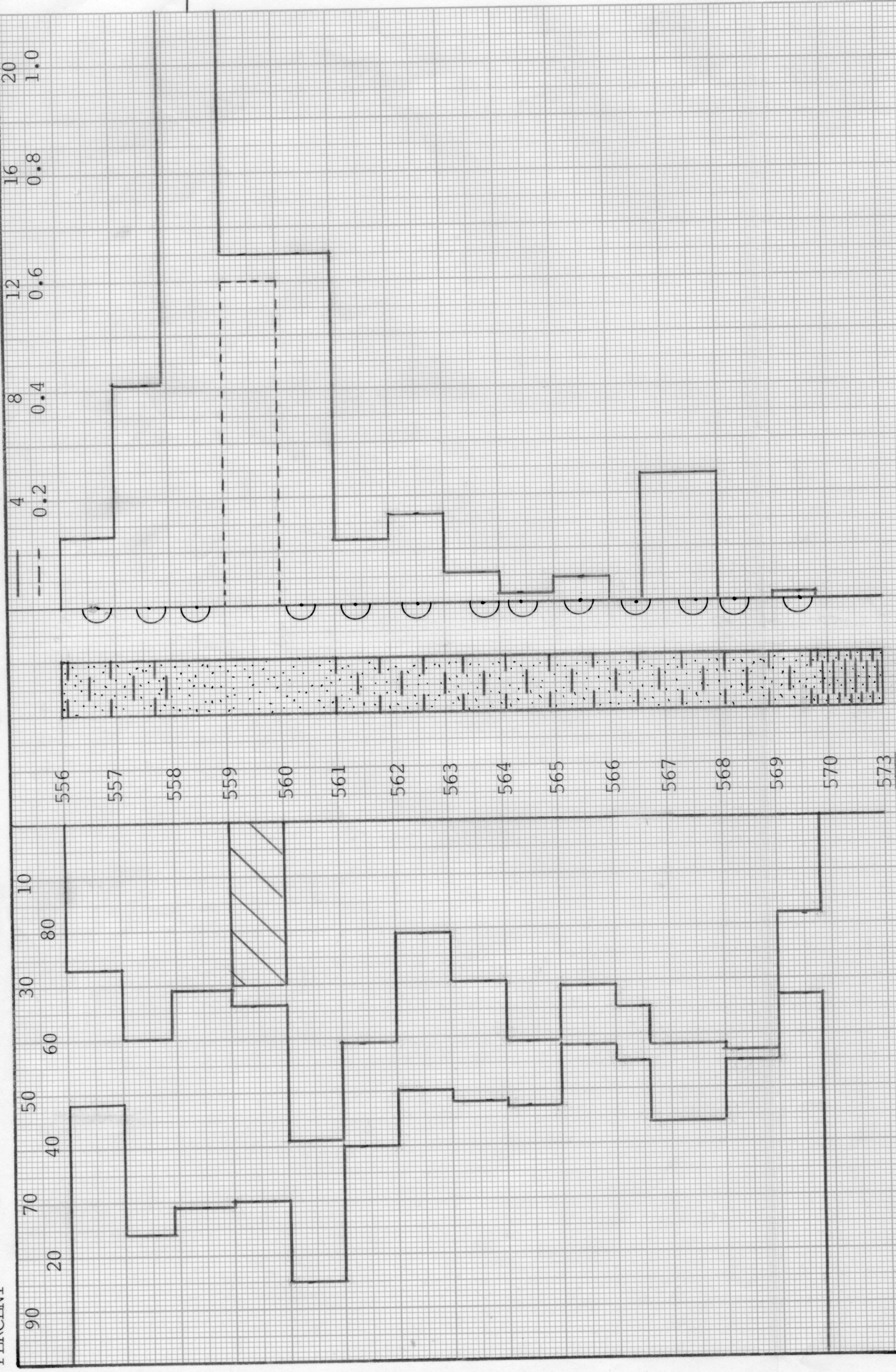
Company <u>Triple-I Energy Corporation</u>	Lease <u>Dunn</u>	Well No. <u>4</u>
Depth Interval, Feet	<u>556.0 - 561.0</u>	
Feet of Core Analyzed	<u>1.0</u>	
Average Percent Porosity	<u>21.7</u>	
Average Percent Original Oil Saturation	<u>34.0</u>	
Average Percent Oil Recovery	<u>4.0</u>	
Average Percent Residual Oil Saturation	<u>30.0</u>	
Average Percent Residual Water Saturation	<u>49.0</u>	
Average Percent Total Residual Fluid Saturation	<u>79.0</u>	
Average Original Oil Content, Bbls./A. Ft.	<u>572.</u>	
Average Oil Recovery, Bbls./A. Ft.	<u>67.</u>	
Average Residual Oil Content, Bbls./A. Ft.	<u>505.</u>	
Total Original Oil Content, Bbls./Acre	<u>572.</u>	
Total Oil Recovery, Bbls./Acre	<u>67.</u>	
Total Residual Oil Content, Bbls./Acre	<u>505.</u>	
Average Effective Permeability, Millidarcys	<u>0.60</u>	
Average Initial Fluid Production Pressure, p.s.i.	<u>45.0</u>	

NOTE: Only those samples which recovered oil were used in calculating the above averages.

WATER SAT,
PERCENT

OIL SAT.,
PERCENT

PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS



KEY:

SANDSTONE

FLOODPOT RESIDUAL OIL SATURATION




SHALY SANDSTONE

SANDY SHALE

IMPERMEABLE TO WATER

SHALY SANDSTONE
 SANDY SHALE
 IMPERMEABLE TO WATER

SANDSTONE
 FLOODPOT RESIDUAL OIL SATURATION

KEY:




TRIPLE I ENERGY CORPORATION

DUNN LEASE
 MIAMI COUNTY, KANSAS
 WELL NO. 4

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY PERCENT	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLs. / ACRE
556.0 - 561.0	5.0	20.5	38.0	29.3	12.7	
561.0 - 569.8	8.8	16.8	34.2	50.7	2.1	
556.0 - 569.8	13.8	18.1	35.6	42.9	6.4	395 (PRIMARY AND WATERFLOODING)

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 CHANUTE, KANSAS
 DECEMBER, 1982
 PDC